

Paediatric trauma of the extremities

General features:

- Growth plates are 2-5 times weaker than bones and ligaments
- Greenstick fractures: one cortex deforms without fracturing
- There is DECREASED chance of fracture propagation
- Comminuted fractures are rare
- Children's bones absorb more force than adults
- Pelvic fractures are uncommon (the pelvis flexes, and the pelvic organs take a hit)
- 20% of your blood volume can leak out into the fractured thigh

Evaluation happens in the secondary survey

Crush injuries of the abdomen and pelvis

- Pelvic disruption = life threatening blood loss
- Splint the pelvis
- Put the blood back in
- Embolization of the bleeding vessels may be needed (radiology)

Traumatic amputation

- Partial is more threatening than complete: transected vessels go into spasm, lacerated ones do not.
- Tourniquets are out of fashion: they don't stop bleeding from bones. Instead, use an elastic compression bandage, or press on the proximal end-artery
- Dress the stump with a sterile dressing soaked in saline, and splint/elevate the limb.
- Amputated part will remain viable for 8 hours at room temperature, or 18 hrs on ice.
 - Clean it
 - Wrap in moist sterile towel
 - Place in sterile sealed plastic bag
 - Put the bag in an ice box
 - The bodypart should not come in contact with the ice
 - *It has to travel in the same vehicle as the child*
- Keep it even if you don't plan to graft it.

Massive open long-bone fractures

- Open fractures cause twice the blood loss of closed fractures
- Thus, a open femoral fracture = 40% blood loss

Things to do during the secondary survey

- **Active movement: don't passively move their fractured limb**
- **The key is to identify THE THREATENED LIMB:**

VASCULAR PROBLEM

- **Pulses present?**
- **Cap refill present?**
- **Decreased sensation**
- **Rapidly expanding hematoma**
- **A Bruit**

COMPARTMENT SYNDROME

Symptoms start when the compartment pressure rises above capillary pressure.
Pulse is lost when compartment pressure rises above arterial pressure.

- **Pain on passive stretching of the muscle**
- **Decreased sensation**
- **Swelling pallor of limb**
- **Paralysis**
- **Pulselessness- by this time irreversible damage has occurred**
- **Usually, it will happen within hours of some sort of crush injury**

Emergency treatment

- **Alignment**
- **Reduction**
- **Immobilization**
- **Traction**

The child with spinal trauma

Factoids

- **Traumatic torticollis should be immobilized in their current position**
- **Upper 3 vertebrae are the ones involved in the young children**
- **In older children, it's the lower 3 vertebrae**

Guidelines for clinically clearing the C-spine

- **No midline tenderness on palpation**
 - **No focal neuro deficit**
 - **Normal level of alertness**
 - **Not intoxicated**
 - **No painful distracting injuries**
- **Pseudosubluxation occurs in 9% of 1 to 7 yr olds; usually C2 on C3 or C3 on C4**

**Atlantoaxial rotary subluxation is the most common injury;
the child presents with torticollis**

if youre going to use steroids, use them within 8 hrs of the injury